REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

A new Abstract is provided herewith on a separate sheet.

As required in the office action, the specification has been amended to refer to reference numbers 501, 502, and 504 in connection with Fig. 4.

The claims have been amended to overcome the objections on page 4 of the office action and the 35 USC 112, second paragraph, rejections on pages 4-7 of the office action.

In particular, claims 28 and 41 call for transmitting uplink data packets via an uplink data channel utilizing a HARQ protocol applying soft combining of data packets and applying synchronous retransmissions. Further, in order to facilitate comprehension of the claimed subject matter, the feedback message now indicates that the data packet has not been decoded successfully by the base station, and the subsequent steps thus relate to the operation of the mobile station when receiving this negative feedback message.

Claims 28 and 41 also clarify that the base station determines whether there is sufficient transmission power available/granted to the mobile station ("maximum allowed

transmission power") to synchronously transmit a retransmission data packet for the unsuccessfully decoded data packet at a predetermined point in time after having received the feedback message and for transmitting other uplink data within the same transmission time interval.

In view of the preambles of claims 28 and 41 relating to a HARQ protocol applying soft combining of data packets and applying synchronous retransmissions, the terminology "synchronously transmitting" has been chosen to relate to the transmitting of the "retransmission data packet for the unsuccessfully decoded data packet at a predetermined point in time after having received the feedback message," i.e., with a given offset relative to the feedback message.

Also, the language "the other data has a higher logical channel priority than the data of the retransmission data packet" has been replaced by the language "other uplink data is prioritized over the retransmission data packet."

The dependent claims have been revised in a manner consistent with the changes to independent claims 28 and 41, and claims 38 and 39 have been canceled.

Turning now to the art rejections, claims 28-33, 37, 38, 41-46 and 50 stand rejected under 35 USC 103(a) as unpatentable over Raaf (EP 1 198 076) in view of Tripathi et al. (USPN 6 671 849).

Claims 34 and 37 stand rejected under 35 USC 103(a) as unpatentable over Raaf (EP 1 198 076) in view of Tripathi et al. (USPN 6 671 849) and further in view of Miyakoshi et al. (US 2002/147819). Claims 39 and 40 stand rejected under 35 USC 103(a) as unpatentable over Raaf (EP 1 198 076) in view of Tripathi et al. (USPN 6 671 849) and further in view of Antonio (USPN 6 426 960). To the extent that these rejections may be applied to the amended claims presented herein, the Applicants respectfully traverse based on the points set forth below.

Raaf discloses a UMTS mobile communication system in which power levels of retransmissions are set taking into account maximum and minimum available power levels. In particular, Raaf relates to an improvement to the physical random access procedure of a UMTS system performed on initial access of a user equipment (UE) to the network, as specified in 3GPP TS 25.214, chapter 6, version 3.4D (Sept. 2000).

With respect to the enumeration on page 3 of Raaf, as confirmed on page 8, items 7 to 9, the steps of items 7, 8 and 9 of the random access procedure relate to the following situations: Item 7 defines the handling of receiving NO RESPONSE to a preamble, Item 8 relates to the reception of a NEGATIVE RESPONSE to the preamble, while item 9 (though not explicitly mentioned on page 3 of Raaf) refers to the situation, where there

is an POSITIVE RESPONSE to the preamble, i.e. the access network indicating that it could detect the preamble.

Accordingly, in case of an access grant, the UE sends a random access message (e.g. containing measurements on the RACH). However, the random access message is *not* sent in parallel to the preamble.

It appears that the random access procedure on the random access channel (RACH) is based on the UE transmitting a so-called preamble in a selected uplink access slot utilizing a specific signature and a preconfigured transmission power (see, for example, page 3, lines 33-35 and page 7, lines 43-45 of Raaf).

As further outlined in enumeration item 7 of the random access procedure (see page 3, lines 37-50 and page 8, lines 1-17), if no response to the random access message is received at the UE, the UE selects a new signature from the available signatures, decreases the Preamble Retransmission counter by one and retransmits a new preamble on the RACH applying an additional transmission power offset ΔP_0. As the transmission is increased step-wise by the power offset ΔP_0 in case no response to preambles is received, it may be said that the reference relates to a "ramping procedure" being used in the random access procedure.

If the negative acquisition indicator corresponding to the previously transmitted preamble is received in the downlink access slot corresponding to the selected uplink access slot (see page 3, lines 52-54, enumeration item 8 and page 8, lines 19-22), the UE sets a special timer ("negative AICH timer") to indicate the use of ΔP_1 used as preamble power offset until timer expiry. It is the Applicants understanding that the access is not granted to the UE.

Further, according to enumeration item 9 of the physical random access procedure (see page 3, lines 56-58), the UE transmits another preamble three or four uplink access slots after the uplink access slot of the last transmitted preamble depending on the "AICH transmission timing parameter," thereby also applying another power offset ΔP_{p-m} with respect to the last transmitted preamble.

In case a negative acquisition indicator is received for a previous preamble, the new preamble is transmitted with a specific power offset (ramping procedure).

As outlined in paragraph [0014] of Raaf, the purpose of the solution proposed by Raaf is an optimization of the physical random access procedure in case the power capability of the UE is exceeded. As outlined on page 9, paragraph [0015] of Raaf, in reality the power with which the UE can transmit any signal is

limited both with a maximum power the UE cannot exceed and a minimum power which the UE cannot go below. This maximum power may be, for example, limited on a cell-by-cell basis in order to make sure that no excessive interference is generated in this call or surrounding cells.

Based on this passage, the Applicants submit that the power capability of the UE referred to in Raaf relates to the UE being given a maximum power which it may use for transmitting on the random access channel during the random access procedure.

In essence, Raaf teaches to take into account such limitations in the RACH ramping scheme of the random access procedure (see page 9, paragraph [0016]). In this context, Raaf suggests to limit the maximum transmission power for the random access message transmitted during the random access procedure to the "upper UE power" (which the Applicants understand to correspond to the maximum power allowed within a cell-- see page 9, paragraph [0015]), although the ramping procedure would yield a higher transmission power (see page 10, paragraph [0021]).

As is apparent from the above, Raaf does not relate to the subject matter of the present claims. The present claims relate to the mobile station and the base station using a HARQ retransmission protocol, whereas Raaf does not use such a protocol.

The office action considers the language of the claims as being so broad as to not be limited to HARQ retransmission protocol. In fact, the office action considers there to be the following correspondence between the claim language and Raaf:

Claim language	Raaf
data packet	preamble
feedback message	negative acquisition indicator
retransmission data packet	random access message sent after receiving a positive acknowledgment to the preamble
uplink data channel	RACH

In general, the Applicants submit that the RACH in Raaf is not comparable to the uplink data channel of the present claims, and that the random access message transmitted via the RACH is not comparable to a data packet transmitted via an uplink data channel. The Applicants' claimed invention relates to the transmission of user data (although not explicitly using this term) using a HARQ retransmission protocol applying soft recombining and applying synchronous retransmissions. Accordingly, the Applicants submit that there is no correspondence between the above-noted terms of the present claims and Raaf.

Moreover, even if one were to assume *arguendo* that "data packet" and "preamble" were comparable and "uplink data channel" and "RACH" were comparable, nevertheless "feedback message" and "negative acquisition indicator" and "retransmission data packet" and "random access message sent after receiving a positive acknowledgment to the preamble" are not at all comparable because these terms relate to a completely different technical purposes and functions, as discussed below. This is because the retransmission data packet is transmitted to "repair" the previously transmitted and unsuccessfully decoded data packet through the application of soft combining, i.e., to achieve the ultimate successful decoding of the previously unsuccessfully decoded data packet. Accordingly, the feedback message of the Applicants' claims has the purpose of informing whether or not the decoding of the data packet has been successful. On the other hand, the "negative acquisition indicator" of Raaf indicates that the preamble for which it is sent has been received successfully; however, the access request may not be granted by the network. The negative acquisition indicator sent for a preamble therefore does not indicate whether or not the preamble (data packet) has been successfully decoded by the base station. Further, the negative access indicator is transmitted by the access network only in case the preamble has been

successfully received and decoded, in contrast to the present claimed invention wherein the feedback message is sent for a data packet that has *not* been successfully decoded.

In view of the negative acquisition indicator having a completely different function in the random access procedure proposed by Raaf, furthermore the function and purpose of the random access message sent in response to the negative acquisition indicator is different from the function and purpose of a retransmission data packet in the present claims. It is particularly noted that claims 28 and 41 recite that the retransmission data packet is transmitted for the unsuccessfully decoded data packet, not for a successfully received and decoded preamble as in Raaf.

The "repeated" preamble is using a newly selected preamble (i.e., different to the preamble for which the negative acquisition indicator has been received); see, page 3, lines 37-50 and page 8, lines 1-17 of Raaf. Accordingly, the only purpose of the preamble sent after receiving the negative acquisition indicator is the UE again trying to access to the radio access network. However, this repeated preamble is neither sent for the previous preamble nor has it the purpose of repairing the content of the previous preamble, and particularly not by means of soft-combining as in the present claims. It should be noted that the

use of soft-combining by implementing a HARQ protocol does not make sense for the RACH, as this channel is not power-controlled in UMTS. This also confirms that the transmission of a new preamble in a repetition in the random access procedure is not a retransmission.

In sum, with respect to HARQ protocol distinguishing over Raaf, the "retransmission data packet" is transmitted to "repair" the previously transmitted and unsuccessfully decoded data packet (soft combining), to ensure the successful decoding of the data packet. This also allows to reduce the overall transmission power for the data packet due to the soft combining gain.

In contrast, the "negative acquisition indicator" in Raaf does not serve this purpose, but may rather be referred to as a "repetition" of the access attempt, in case the previous access attempt was not successful. In fact, by signaling a "negative acquisition indicator" the random access procedure in UMTS is ended (and a corresponding message is provided to the MAC layer (see RAAF, page 3, item 8)). In UMTS, after some back-off time, the MAC layer may once again retry gaining access by repeating/re-executing the physical random access procedure.

Moreover, Raaf fails to disclose or suggest that a retransmission data packet is transmitted at a predetermined point in time after having received the feedback message, i.e.,

with a given offset relative to the reception of a feedback message. Raaf merely discloses on page 3, line 56 that the (next) preamble is transmitted three or four uplink access slots after the uplink access slot of the last transmitted preamble. Hence, the "repeated" preamble is sent relative to a previous transmission of a preamble.

Further, Raaf also fails to teach or suggest that other uplink data is transmitted in parallel to the retransmission data packet, wherein the other uplink data is prioritized over the retransmission data packet. The Applicants submit that in Raaf, there is no uplink data transmitted in parallel to a random access message in the random access procedure. Further, the use of priorities for the transmission of data does not appear to be discussed in Raaf.

Regarding this feature, the office action argues at page 8, fourth line from the bottom, that the RACH data packet includes a preamble PRACH and optional data. From this statement, the Applicants conclude that the office action considers the optional data to correspond to the "other uplink data" of the present claims. However, there does not appear to be any teaching in Raaf that the optional data has a priority over the preamble PRACH (random access message); rather, the preamble is always transmitted independent of whether there is optional other data.

Concerning the feature of transmitting "other uplink data" in parallel to the retransmission data packet, whereby the other uplink data is prioritized over the retransmission data packet, it is further noted that, in contrast to the allegation in the office action (see page 8, 4th line from the bottom), the UMTS random access procedure does not send optional data and the preamble in parallel. The office action is correct in that RACH data packets may contain data, such as for example measurements on the RACH. However, this data is transmitted after successfully accessing the system and not together with a preamble.

The Applicants note further that the power limitations considered in Raaf and the present claimed invention have a completely different technical background. In Raaf, the power limitation is solely a result of the UE performing a ramping procedure, i.e. successively trying to increase its transmission power, in case no response to a preamble is received, due to assuming at the UE that the preamble has not been received as a result of insufficient transmission power. Hence, the ramping may lead to the UE reaching its physical transmission power capabilities and not being able to transmit with the transmission power yielded by power ramping. In contrast, the subject matter of present independent claims 28 and 41 refers to a (user) data transmission on the uplink using HARQ as a retransmission

protocol and provides a solution on handling situations, wherein the power limitation (maximum ALLOWED transmission power) would be exceeded if choosing the appropriate transmission power for transmitting retransmission data packet and other higher priority data in parallel.

Tripathi was cited in the office action against the independent claims for a teaching of decoding packets. It is submitted that Tripathi does not cure the above-noted deficiencies of Raaf.

Thus, it is submitted that Raaf and Tripathi, considered alone or together, fail to anticipate or render obvious the subject matter of the present independent claims 28 and 41.

Miyakoshi and Antonio have been cited only against dependent claims.

Accordingly, it is submitted that independent claims 28 and 41, and all claims dependent therefrom, are directed to allowable subject matter, and a notice of allowance is respectfully requested.

If any issues remain which may best be resolved through a telephone communication, the examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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